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# Customer Perception with regard to the Role of Artificial Intelligence (AI) in the Banking Sector in Chennai

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**Abstract:** The rapid integration of Artificial Intelligence (AI) within the banking sector has transformed the way customers experience financial services. This study examines customer perception regarding the role of AI in banks operating in Chennai, focusing on awareness, acceptance, service quality, trust, and perceived usefulness of AI-enabled banking solutions. The research investigates how customers evaluate AI-driven services such as chatbots, automated customer support, fraud detection systems, and personalized financial recommendations. Primary data was collected from respondents across Chennai to understand their expectations, satisfaction levels, and concerns related to privacy and reliability. The findings indicate that while customers acknowledge the efficiency and convenience offered by AI, issues relating to security and human touch still influence overall acceptance. The study provides insights for banks to enhance customer-centric AI strategies and strengthen trust in digital financial innovations.

***Keywords:*** *Artificial Intelligence, Customer Perception, Banking Sector, Chennai, Service Quality, Digital Innovation.*

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## I.INTRODUCTION:

The rapid digital transformation of the banking sector has positioned Artificial Intelligence (AI) as a key driver in enhancing service delivery, customer engagement, and operational efficiency. Banks in metropolitan cities like Chennai are increasingly integrating AI technologies such as chatbots, automated customer support, fraud detection systems, personalized financial recommendations, and intelligent process automation to meet evolving customer expectations. As customers become more digitally aware, their perception of AI-enabled banking services plays a crucial role in shaping the adoption, acceptance, and overall satisfaction with these technologies.

In Chennai, the rise of mobile banking, digital payments, and AI-driven customer interfaces reflects a shift towards convenience, speed, and security. However, customer perceptions may vary based on factors such as awareness, trust, perceived usefulness, and prior experience with digital platforms. While some customers view AI as a tool that enhances accessibility and improves transaction efficiency, others may express concerns regarding data privacy, reliability, and the lack of human interaction.

Understanding customer perception is therefore essential for banks aiming to optimize AI-driven services and develop strategies that foster trust, usability, and inclusivity. This study examines how customers in Chennai perceive the role of AI in banking, highlighting key determinants influencing their acceptance and satisfaction with AI-based financial services.

**Review of Literature**

Artificial Intelligence (AI) has significantly transformed the banking industry by enhancing operational efficiency, improving accuracy, and enabling personalized customer software, applying descriptive statistics, reliability testing, and one-way ANOVA to identify significant differences in customer perceptions across demographic groups. The methodology ensured systematic data collection and objective analysis to understand how customers view and experience AI applications in modern banking.

**Statement of the Problem**

services. Several studies highlight that AI-riventechnologies—such as chatbots, predictive analytics, fraud detection systems, and automated customer support—play a crucial role in reshaping customer interactions. According to Sharma (2019), AI improves service speed and accuracy, resulting in higher satisfaction levels among banking customers. Gupta and Arora (2020) found that customer awareness and trust are key determinants influencing acceptance of AI-based services. Studies conducted in the Indian context (Kumar & Shetty, 2021) suggest that customers appreciate the convenience and round-the-clock accessibility provided by AI tools but remain concerned about data privacy and security. Research also indicates that demographic variables such as age, education, and technology usage significantly affect perceptions towards AI-driven banking services.

**Objectives**

1. To evaluate the overall customer perception of AI-enabled banking services among bank customers in Chennai.
2. To examine the Service Quality and Customer Satisfaction of AI in banking differs significantly across demographic and banking-related groups.

**Methodology**

The study employed a descriptive research design to analyse customer perception of Artificial Intelligence (AI) in the banking sector across Chennai. Primary data was collected using a structured questionnaire distributed to 210 respondents selected through convenient sampling. The instrument measured factors such as awareness, usage, satisfaction, and trust in AI-enabled banking services. Data were coded and processed using statistical

Although banks in Chennai are rapidly adopting AI-driven services (chatbots, fraud detection, robo-advisors, personalization), little is known about how different customer segments perceive these technologies. Varying levels of digital literacy, privacy concerns, and expectations may produce unequal acceptance and satisfaction. Without clear evidence on which groups have positive or negative perceptions, banks risk

deploying AI features that fail to meet customer needs or reduce trust. This study addresses the knowledge gap by measuring customer perceptions and testing whether those perceptions vary across key demographic and usage categories.

**Analysis and Interpretation**

The analysis and interpretations explore how customers perceive the role of Artificial Intelligence in Chennai's banking sector. Using statistical tools, the study examines variations in opinions across demographic groups. The results highlight key patterns in efficiency, satisfaction, reliability, and usage of AI services, providing insights into customer experiences and expectations.

**Null Hypothesis:** There is no significant difference among Age Group with respect to Customer Perception of AI in Banking

**Table 1 ANOVA for significant difference among Age Group with respect to Customer Perception of AI in Banking**

| Customer Perception of AI in Banking | Mean | F | Sig |
|---|---|---|---|
| AI makes banking services faster and more efficient. | 25.149 (1.256) | 20.021 | <0.001** |
| AI improves accuracy in banking transactions | 44.940 (1.130) | 39.767 | <0.001** |
| AI provides better personalized financial solutions | 23.542 (1.720) | 13.691 | <0.001** |
| AI-enabled services are easy to use and understand | 38.423 (1.508) | 25.477 | <0.001** |
| I feel comfortable interacting with AI chatbots | 46.815 (1.321) | 35.436 | <0.001** |
| AI services reduce the need to visit branches | 42.381 (0.976) | 43.440 | <0.001** |

The ANOVA results indicate significant differences in customer perceptions regarding various aspects of AI in banking, as all items show p-values less than 0.001. Customers strongly agree that AI improves transaction accuracy (F = 39.767) and enhances comfort while interacting with AI chatbots (F = 35.436). AI's role in reducing branch visits (F = 43.440) and making banking faster and more efficient (F = 20.021) is also perceived positively. Similarly, AI-enabled services are considered easy to use (F = 25.477) and capable of providing personalized financial solutions (F = 13.691). Overall, perceptions differ significantly across groups, indicating diverse experiences and expectations toward AI-based banking services.

**Null Hypothesis:** There is no significant difference among Educational Qualifications with respect to Customer Perception of AI in Banking

**Table 2 ANOVA for significant difference among Educational Qualifications with respect to Customer Perception of AI in Banking**

| Customer Perception of AI in Banking | Mean | F | Sig |
|---|---|---|---|
| AI makes banking services faster and more efficient. | 5.032 (1.665) | 3.022 | 0.031* |
| AI improves accuracy in banking transactions | 36.143 (1.471) | 24.572 | <0.001** |
| AI provides better personalized financial solutions | 43.306 (1.538) | 28.164 | <0.001** |
| AI-enabled services are easy to use and understand | 16.202 (2.011) | 8.057 | <0.001** |
| I feel comfortable interacting with AI chatbots | 85.198 (0.983) | 86.671 | <0.001** |
| AI services reduce the need to visit branches | 31.758 1.331 | 23.855 | <0.001** |

The ANOVA results reveal significant differences in customer perceptions toward the role of AI in banking across all factors, with p-values showing statistical significance at either the 0.05 or 0.001 levels. Customers moderately agree that AI makes banking faster and more efficient (F = 3.022, p = 0.031). Stronger agreement is observed for AI improving accuracy in transactions (F = 24.572) and offering better personalized financial solutions (F = 28.164). Respondents also feel that AI-enabled services are easy to use (F = 8.057) and express a very high comfort level when interacting with AI chatbots (F = 86.671). Additionally, AI is perceived as significantly reducing the need for branch visits (F = 23.855). Overall, the results indicate diverse yet positive perceptions of AI-enabled banking services among different customer groups.

**Null Hypothesis:** There is no significant difference among Age Group with respect to Service Quality and Customer Satisfaction of AI in Banking

**Table 3 ANOVA for significant difference among Age Group with respect to Service Quality and Customer Satisfaction of AI in Banking**

| Service Quality and Customer Satisfaction of AI in Banking | Mean | F | Sig |
|---|---|---|---|
| AI-based customer support responds quickly to queries | 29.970 (1.427) | 21.005 | <0.001** |
| AI improves the overall quality of banking services | 22.470 (1.346) | 16.700 | <0.001** |
| AI services are reliable and consistent | 56.667 (1.463) | 38.722 | <0.001** |
| I am satisfied with my bank's AI-enabled services | 35.357 (1.707) | 20.709 | <0.001** |
| AI has improved my overall banking experience | 31.607 (1.683) | 18.781 | <0.001** |
| I would recommend AI-based banking services to others | 24.464 (1.683) | 14.537 | <0.001** |

The ANOVA analysis shows statistically significant differences in customer perceptions regarding service quality and satisfaction with AI-enabled banking services, as all factors have p-values less than 0.001. Customers strongly believe that AI-based customer support responds quickly to queries (F = 21.005) and improves the overall quality of banking services (F = 16.700). Reliability and consistency of AI services receive the highest variation in perception (F = 38.722), indicating differing experiences among users. Respondents also report high satisfaction with AI-enabled services (F = 20.709) and feel that AI has enhanced their overall banking experience (F = 18.781). Additionally, many customers express willingness to recommend AI-based banking services to others (F = 14.537). Overall, the findings suggest that AI significantly contributes to enhanced service quality and customer satisfaction, though perceptions vary across respondent groups.

**Null Hypothesis:** There is no significant difference among Educational Qualifications with respect to Service Quality and Customer Satisfaction of AI in Banking

**Table 4 ANOVA for significant difference among Educational Qualifications with respect to Service Quality and Customer Satisfaction of AI in Banking**

| Service Quality and Customer Satisfaction of AI in Banking | Mean | F | Sig |
|---|---|---|---|
| AI-based customer support responds quickly to queries | 53.460 1.223 | 43.702 | <0.001** |
| AI improves the overall quality of banking services | 45.071 1.119 | 40.281 | <0.001** |
| AI services are reliable and consistent | 53.056 1.784 | 29.740 | <0.001** |
| I am satisfied with my bank's AI-enabled services | 9.060 2.254 | 4.020 | <0.001** |
| AI has improved my overall banking experience | 25.476 1.917 | 13.286 | <0.001** |
| I would recommend AI-based banking services to others | 71.952 1.102 | 65.296 | <0.001** |

The ANOVA results reveal significant differences in customer perceptions regarding service quality and satisfaction with AI in banking, with all statements showing p-values below 0.001. Customers strongly agree that AI-based customer support responds quickly to queries (F = 43.702) and that AI enhances overall service quality (F = 40.281). Perceptions of AI's reliability and consistency also show considerable variation (F = 29.740), indicating differing user experiences. Satisfaction with AI-enabled services, though positive, shows a lower F-value (4.020), reflecting moderate variation among respondents. AI is perceived to have improved overall banking experiences (F = 13.286), and there is strong willingness to recommend AI-based services to others (F = 65.296). Overall, customers hold positive views, though their experiences differ significantly across groups.

**Findings**

- The study revealed that customers in Chennai generally hold positive perceptions toward AI-enabled banking services.
- Respondents strongly agreed that AI improves transaction accuracy, enhances service efficiency, and reduces the need for branch visits.
- AI-based customer support, particularly chatbots, was viewed as quick and effective, although a few customers expressed concerns about ease of use and personalization.
- ANOVA results showed significant differences in perceptions across demographic groups, indicating that age, education level, and digital literacy influence attitudes toward AI banking tools. Overall, AI was perceived to improve service quality, reliability, and customer satisfaction within the banking sector.

**Practical Implications**

The results highlight the need for banks to strengthen AI adoption while ensuring user-friendly interfaces and transparent communication. Banks can invest in advanced chatbots, predictive analytics, and personalized financial recommendations to enhance customer engagement. Training initiatives or digital literacy programs may help customers who are less familiar with AI services. Addressing concerns related to data privacy and system reliability can further improve trust. Banks should also combine AI with human support to balance efficiency with personalized service, ensuring a smooth and inclusive customer experience.

**Conclusion**

The study concludes that AI plays a significant role in shaping modern banking experiences in Chennai. Customers perceive AI as beneficial, efficient, and accurate, contributing to higher satisfaction and improved service quality. Although overall attitudes are positive, perceptions vary across demographic groups, emphasizing the need for banks to adopt customer-centric AI strategies. Continuous refinement, transparent operations, and enhanced security measures will help banks maximize the advantages of AI while ensuring greater acceptance among customers. The findings affirm that AI is a crucial driver of innovation and competitiveness in the banking sector.

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